



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/876,984	06/08/2001	Qingping Chen	618-999	9954

20583 7590 08/12/2002
PENNIE AND EDMONDS
1155 AVENUE OF THE AMERICAS
NEW YORK, NY 100362711

EXAMINER

SHOSHO, CALLIE E

ART UNIT	PAPER NUMBER
----------	--------------

1714

DATE MAILED: 08/12/2002

3

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/876,984

Applicant(s)

CHEN ET AL.

Examiner

Callie E. Shosho

Art Unit

1714

— The MAILING DATE of this communication appears on the cover sheet with the correspondence address —
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-39 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3-12, 17-23, 29, and 32-35 are rejected under 35 U.S.C. 102(b) as being anticipated by Harris et al. (U.S. 5,886,091).

Harris et al. disclose a non-erasable ink composition comprising polyurethane which has molecular weight of 1,500-25,000, solvent such as hydrocarbon, alcohol, and ester, colorant which is pigment or dye, second resin such as polyamide, epoxide, polyvinyl acetal, or rosin, and up to 5% additives including corrosion inhibitor, antioxidant, and plasticizer. The ink is printed on paper (col.3, lines 3-19 and 40-45, col.4, line 58, col.5, lines 1-62, and col.6, lines 10 and 14-15). From example 11, for instance, it is seen that the ink comprises 5.3% pigment, 5% second resin, 4.6% polyurethane, and 75.2% solvent. Further, given that the ratio of NCO/OH of the polyurethane is less than 1 (see Table 1), it is clear that the polyurethane is isocyanate free.

In light of the above, it is clear that Harris et al. anticipates the present claims.

3. Claims 1-8, 11-14, 18-21, 27-28, and 32-35 are rejected under 35 U.S.C. 102(b) as being anticipated by Yang (U.S. 5,594,044).

Yang discloses ink comprising 1-12% isocyanate free polyurethane which has molecular weight of 5,000-50,000, solvent such as ketone, hydrocarbon, ester, and alcohol, 2-12% colorant which is a solvent soluble dye, 0.01-0.1% surfactant, i.e. dispersant, including acid containing dispersant, 1-10% additional resin, and 0.1-3% plasticizer. The ink has a viscosity of 1.5-6 cP. It is further disclosed that all the ingredients are mixed together to form a homogeneous solution (col.3, lines 21 and 26-59, col.3, line 63-col.4, line 20, col.4, lines 49-51 and 62-63, col.5, lines 44 and 47-53, col.6, lines 5-9, 30-34, and 38-39, and col.7, lines 7-11 and 56-59). From example 1, it is seen that the solvent is present in an amount of, for instance, 60%.

In light of the above, it is clear that Yang anticipates the present claims.

4. Claims 1-14 and 17-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Lent et al. (U.S. 5,837,042).

Lent et al. disclose homogeneous ink comprising 1-15% isocyanate free polyurethane which has a molecular weight of 4,000-12,000, 50-99% solvent such as ketone, alcohol, and ester, and 0.1-2% colorant which is a fluorescent pigment or dye. The ink has viscosity of 1.5-6 cPs and is used on paper (col.6, lines 50-51 and 64-66, col.7, lines 6-8, col.8, lines 32-33 and 52, col.10, lines 10-67, col.11, lines 16-17 and 23-25, col.13, line 33, and col.14, lines 4-7).

In light of the above, it is clear that Lent et al. anticipates the present claims.

5. **NOTE:** In the rejections described above, it is noted that there is no disclosure in either Harris et al., Yang, or Lent et al. that the ink is for a writing instrument. However, the recitation in the claims that the ink is "for a writing instrument" is merely an intended use. Applicants

attention is drawn to MPEP 2111.02 which states that intended use statements must be evaluated to determine whether the intended use results in a structural difference between the claimed invention and the prior art. Only if such structural difference exists, does the recitation serve to limit the claim. If the prior art structure is capable of performing the intended use, then it meets the claim.

It is the Examiner's position that the intended use recited in the present claims does not result in a structural difference between the presently claimed invention and the prior art and further that the prior art structure is capable of performing the intended use. Given that either Harris et al., Yang, and Lent et al. each disclose ink identical to that presently claimed, it is clear that each of these reference inks would be capable of performing the intended use, i.e. ink for a writing instrument, presently claimed as required in the above cited portion of the MPEP.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.

3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harris et al. (U.S. 5,886,091) in view of Gajria (U.S. 4,686,246).

The disclosure with respect to Harris et al. in paragraph 2 above is incorporated here by reference.

The difference between Harris et al. and the present claimed invention is the requirement in the claims of specific type of corrosion inhibitor.

Gajria, which is drawn to ink composition, disclose the use of less than 5% corrosion inhibitor such as benzotriazole in order to prevent corrosion of metal that come into contact with the ink (col.5, lines 42-46). Although Gajria et al. is drawn to ink for ballpoint pen, the teaching is also relevant to ink jet inks where it is important that the ink not corrode the printer.

In light of the motivation for using specific corrosion inhibitor disclosed by Gajria as described above, it therefore would have been obvious to one of ordinary skill in the art to use

such corrosion inhibitor in Harris et al. in order to produce an ink which will not corrode the printer, and thereby arrive at the claimed invention.

9. Claims 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harris et al. (U.S. 5,886,091) in view of Kruse (U.S. 5,663,217).

The disclosure with respect to Harris et al. in paragraph 2 above is incorporated here by reference.

The difference between Harris et al. and the present claimed invention is the requirement in the claims of dispersant.

Kruse, which is drawn to ink jet ink, disclose the use of acrylic resin dispersant in order to produce stable dispersion and bind colorant to paper (col.6, lines 6-15 and 50-52).

In light of the motivation for using dispersant disclosed by Kruse as described above, it therefore would have been obvious to one of ordinary skill in the art to use dispersant in the ink of Harris et al. in order to produce ink with stable dispersion that binds well to paper, and thereby arrive at the claimed invention.

10. Claims 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harris et al. (U.S. 5,886,091) in view of Sarma et al. (U.S. 6,391,943).

The disclosure with respect to Harris et al. in paragraph 2 above is incorporated here by reference.

The difference between Harris et al. and the present claimed invention is the requirement in the claims of specific type of antioxidant.

Sarma et al., which is drawn to ink jet ink, disclose the use of 0.1-5% antioxidant such as eugenol, hydroquinone, and butylated hydroxy toluene in order to lower the amount of dissolved oxygen in the ink, which prevents the formation of bubbles, which in turn improves the ink performance through the printer (col.5, line 60-col.6, line 39).

In light of the motivation for using specific type and amount of antioxidant disclosed by Sarma et al., it therefore would have been obvious to one of ordinary skill in the art to use such antioxidant in the ink of Harris et al. in order to improve ink performance, and thereby arrive at the claimed invention.

11. Claims 36-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harris et al. (U.S. 5,886,091) in view of Zou et al. (U.S. 5,981,625).

Harris et al. disclose a non-erasable ink composition comprising polyurethane, solvent, and colorant that is pigment or dye(col.3, lines 3-19 and 40-45, col.4, line 58, col.5, lines 1-62, and col.6, lines 10 and 14-15). Given that the ratio of NCO/OH is less than 1 (see Table 1), it is clear that the polyurethane is isocyanate free.

The difference between Harris et al. and the present claimed invention is the requirement in the claims of sorbitan sesquioleate.

Zou et al., which is drawn to ink jet ink, disclose the use of 0.5-1% sorbitan sesquioleate, in order to increase the drying rate of the ink (col.16, lines 31-36 and 55).

In light of the motivation for using sorbitan sesquioleate disclosed by Zou et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use

sorbitan sesquioleate in the ink of Harris et al. in order to produce ink with improved drying rate, and thereby arrive at the claimed invention.

12. Claims 1, 3, 5-10, 14-23, 26, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito (U.S. 6,387,984).

Ito discloses non-erasable ink for ballpoint pen wherein the ink has viscosity of 3000-9000 cPs and comprises 0.1-20% polyurethane, 0.1-10% colorant which is pigment or dye, solvent, 1-35% second resin such as polyester, polystyrene, polyacrylate, and polymethyl methacrylate, rust preventative which is benzotriazole, and lubricant (col.4, lines 30-40, col.5, lines 18-20 and 49-58, col.6, lines 51-54, col.7, lines 52-62, col.8, lines 1-56 and 64-66, col.12, lines 58-60, and col.13, lines 6-7).

The difference between Ito and the present claimed invention is the requirement in the claims isocyanate free polyurethane.

Ito discloses the use of polyurethane, however, there is no explicit disclosure that the polyurethane is isocyanate free.

Cook, which is drawn to process of making polyurethane, disclose that if free isocyanate is present, storage stability is a problem as well as less favorable processing characteristics and physical properties (col.2, lines 14-25).

In light of the motivation for using isocyanate free polyurethane disclosed by Cook as described above, it therefore would have been obvious to one of ordinary skill in the art to use isocyanate free polyurethane in the ink of Ito in order to produce a storage stable ink with good processing and physical characteristics, and thereby arrive at the claimed invention.

13. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ito in view of Cook as applied to claims 1, 3, 5-10, 14-23, 26, and 36 above, and further in view of Lent et al. (U.S. 5,837,042).

The difference between Ito in view of Cook and the present claimed invention is the requirement in the claims of molecular weight of the polyurethane.

On the one hand, given the relationship between molecular weight and viscosity, it would have been within the skill level of one of ordinary skill in the art to choose polyurethane with molecular weight, including that presently claimed, in order control the viscosity of the ink so that the ink will not clog the pen or run off the page.

On the other hand, Lent et al., which is drawn to ink composition, disclose the use of polyurethane with molecular weight of 4,000-12,000 as binder in order to increase adhesion of colorant to substrate (col.8, lines 39-44 and col. 10, lines 52-56).

In light of the motivation for using polyurethane with specific molecular weight disclosed by Lent et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use such polyurethane in the ink of Ito, and thereby arrive at the claimed invention.

14. Claims 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito in view of Cook as applied to claims 1, 3, 5-10, 14-23, 26, and 36 above, and further in view of Gajria et al. (U.S. 4,686,246).

The difference between Ito in view of Cook and the present claimed invention is the requirement in the claims of amount of corrosion inhibitor.

Gajria, which is drawn to ink for ballpoint pen, disclose the use of less than 5% corrosion inhibitor in order to prevent corrosion of metals that come in contact with the ink (col.5, lines 42-46).

In light of the motivation for using specific amount of corrosion inhibitor disclosed by Gajria as described above, it therefore would have been obvious to one of ordinary skill in the art to use this amount of corrosion inhibitor in the ink of Ito in order to prevent corrosion of metals which come in contact with the ink, and thereby arrive at the claimed invention.

15. Claims 37-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito in view of Cook as applied to claims 1, 3, 5-10, 14-23, 26, and 36 above, and further in view of Ichikawa et al. (U.S. 5,9870,624).

The difference between Ito in view of Cook and the present claimed invention is the requirement in the claims of sorbitan sesquioleate.

Ichikawa et al. disclose the use of 0.001-10% sorbitan sesquioleate in order to prevent dry-up at pen tip (col.1, lines 64-67, col.2, lines 11-19, and col.4, lines 8-13 and 54).

In light of the motivation for using sorbitan sesquioleate disclosed by Ichikawa et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use sorbitan sesquioleate in the ink of Ito in order to produce an ink which will not dry out at the pen tip, and thereby arrive at the claimed invention.

16. Claims 1-3, 5-14, 17-18, 23-26, 36, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gajria (U.S. 4,686,246) in view of Cook (U.S. 4,146,699).

Gajria discloses homogeneous, non-erasable ink for ball point pen wherein the ink comprises 1-50% polyurethane, 5-20% solvent such as alcohol and pyrrolidone, up to 30% colorant which is pigment or dye, less than 5% corrosion inhibitor such as benzotriazole, and less than 1% lubricant. The ink has viscosity less than 100 cPs (col.2, lines 35-38, col.3, lines 53-55, col.4, lines 2, 15-17, 54-58, and 61-62, col.5, lines 10-15, and col.5, lines 42-55).

The difference between Gajria and the present claimed invention is the requirement in the claims isocyanate free polyurethane.

Gajria discloses the use of polyurethane, however, there is no explicit disclosure that the polyurethane is isocyanate free.

Cook, which is drawn to process of making polyurethane, disclose that if free isocyanate is present, storage stability is a problem as well as less favorable processing characteristics and physical properties (col.2, lines 14-25).

In light of the motivation for using isocyanate free polyurethane disclosed by Cook as described above, it therefore would have been obvious to one of ordinary skill in the art to use isocyanate free polyurethane in the ink of Gajria in order to produce a storage stable ink with good processing and physical characteristics, and thereby arrive at the claimed invention.

17. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gajria in view of Cook as applied to claims 1-3, 5-14, 17-18, 23-26, 36, and 38 above, and further in view of Lent et al. (U.S. 5,837,042).

The difference between Gajria in view of Cook and the present claimed invention is the requirement in the claims of molecular weight of the polyurethane.

On the one hand, given the relationship between molecular weight and viscosity, it would have been within the skill level of one of ordinary skill in the art to choose polyurethane with molecular weight, including that presently claimed, in order control the viscosity of the ink so that the ink will not clog the pen or run off the page.

On the other hand, Lent et al., which is drawn to ink composition, disclose the use of polyurethane with molecular weight of 4,000-12,000 as binder in order to increase adhesion of colorant to substrate (col.8, lines 39-44 and col. 10, lines 52-56).

In light of the motivation for using polyurethane with specific molecular weight disclosed by Lent et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use such polyurethane in the ink of Gajria, and thereby arrive at the claimed invention.

18. Claims 19-22 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gajria in view of Cook as applied to claims 1-3, 5-14, 17-18, 23-26, 36, and 38 above, and further in view of Ichikawa (U.S. 5,980,624).

The difference between Gajria in view of Cook and the present claimed invention is the requirement in the claims of (a) second resin and (b) sorbitan sesquioleate.

With respect to difference (a), Ichikawa, which is drawn to ink for writing instrument, disclose the use second resin such as acrylic resin in order to strengthen fastness of the ink to paper and control viscosity (col.5, lines 18-40).

In light of the motivation for using additional resin disclosed by Ichikawa as described above, it therefore would have been obvious to one of ordinary skill in the art to use such resin in

the ink of Gajria in order to produce an ink with good fastness to paper, and thereby arrive at the claimed invention.

With respect to difference (b), Ichikawa disclose the use of 0.001-10% sorbitan sesquioleate in order to prevent dry-up at pen tip (col.1, lines 64-67, col.2, lines 11-19, and col.4, lines 8-13 and 54).

In light of the motivation for using sorbitan sesquioleate disclosed by Ichikawa as described above, it therefore would have been obvious to one of ordinary skill in the art to use sorbitan sesquioleate in the ink of Gajria in order to produce an ink which will not dry out at the pen tip, and thereby arrive at the claimed invention.

19. Claims 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gajria (U.S. 4,686,246) in view of Cook (U.S. 4,146,699) and Ito (U.S. 6,387,984).

Gajria discloses ink for ballpoint pen wherein the ink comprises polyurethane, solvent such as alcohol and pyrrolidone, and colorant (col.2, lines 35-38, col.3, lines 53-55, col.4, lines 2, 15-17, 54-58, and 61-62, col.5, lines 10-15, and col.5, lines 42-55).

The difference between Gajria and the present claimed invention is the requirement in the claims of (a) isocyanate free polyurethane and (b) dispersant.

With respect to difference (a), Gajria discloses the use of polyurethane, however, there is no explicit disclosure that the polyurethane is isocyanate free.

Cook, which is drawn to process of making polyurethane, disclose that if free isocyanate is present, storage stability is a problem as well as less favorable processing characteristics and physical properties (col.2, lines 14-25).

With respect to difference (b), Ito, which is drawn to ink for ballpoint pen, disclose the use of dispersant including acid containing dispersant in order to disperse colorant and produce ink with suitable writing characteristics (col.8, lines 41-42 and 50-51 and col.8, line 64-col.9, line 5).

In light of the motivation for using isocyanate free polyurethane and dispersant disclosed by Cook and Ito, respectively, as described above, it therefore would have been obvious to one of ordinary skill in the art to use isocyanate free polyurethane and dispersant in the ink of Gajria in order to produce a storage stable ink with good processing, physical characteristics, and writing characteristics, and thereby arrive at the claimed invention.

20. Claims 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gajria (U.S. 4,686,246) or Ito (U.S. 6,387,984) either of which in view of Cook (U.S. 4,146,699) and Kramer et al. (U.S. 4,077,807).

Gajria discloses ink for ballpoint pen wherein the ink comprises polyurethane, solvent such as alcohol and pyrrolidone, and colorant (col.2, lines 35-38, col.3, lines 53-55, col.4, lines 2, 15-17, 54-58, and 61-62, col.5, lines 10-15, and col.5, lines 42-55).

Alternatively, Ito discloses ink for ballpoint pen comprising polyurethane, colorant that is pigment or dye, and solvent (col.4, lines 30-40, col.5, lines 18-20 and 49-58, col.6, lines 51-54, col.7, lines 52-62, col.8, lines 1-56 and 64-66, col.12, lines 58-60, and col.13, lines 6-7).

The difference between Gajria or Ito and the present claimed invention is the requirement in the claims of (a) isocyanate free polyurethane and (b) antioxidant.

With respect to difference (a), both Gajria and Ito disclose the use of polyurethane, however, there is no explicit disclosure in either reference that the polyurethane is isocyanate free.

Cook, which is drawn to process of making polyurethane, disclose that if free isocyanate is present, storage stability is a problem as well as less favorable processing characteristics and physical properties (col.2, lines 14-25).

With respect to difference (b), Kramer et al., which is drawn to ink for writing instrument, disclose the use of 1-3% antioxidant such as hydroquinone in order to prevent corrosion and reaction of the ink with oxygen which produces a stable ink which will not clog the pen tip over time (col.3, line 63-col.4, line 7, col.5, lines 3-8, col.7, lines 42-62, col.8, lines 63-64, and col. 16, lines 11-13).

In light of the motivation for using isocyanate free polyurethane and antioxidant disclosed by Cook and Kramer et al., respectively, as described above, it therefore would have been obvious to one of ordinary skill in the art to use isocyanate free polyurethane and antioxidant in the ink of either Gajria or Ito in order to produce a storage stable ink with good processing and physical characteristics, and thereby arrive at the claimed invention.

21. Claims 32-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gajria (U.S. 4,686,246) or Ito (U.S. 6,387,984) either of which in view of Cook (U.S. 4,146,699) and Enami (U.S. 4,471,079).

Gajria discloses ink for ballpoint pen wherein the ink comprises polyurethane, solvent such as alcohol and pyrrolidone, and colorant (col.2, lines 35-38, col.3, lines 53-55, col.4, lines 2, 15-17, 54-58, and 61-62, col.5, lines 10-15, and col.5, lines 42-55).

Alternatively, Ito discloses ink for ballpoint pen comprising polyurethane, colorant that is pigment or dye, and solvent (col.4, lines 30-40, col.5, lines 18-20 and 49-58, col.6, lines 51-54, col.7, lines 52-62, col.8, lines 1-56 and 64-66, col.12, lines 58-60, and col.13, lines 6-7).

The difference between Gajria and the present claimed invention is the requirement in the claims of (a) isocyanate free polyurethane and (b) plasticizer.

With respect to difference (a), both Gajria and Ito disclose the use of polyurethane, however, there is no explicit disclosure in either reference that the polyurethane is isocyanate free.

Cook, which is drawn to process of making polyurethane, disclose that if free isocyanate is present, storage stability is a problem as well as less favorable processing characteristics and physical properties (col.2, lines 14-25).

With respect to difference (b), Enami, which is drawn to ink for ballpoint pen, disclose the use of 2% plasticizer in order to control the adhesion properties of the ink (col.8, lines 39-53 and col.25, line 67).

In light of the motivation for using isocyanate free polyurethane and plasticizer disclosed by Cook and Enami, respectively, as described above, it therefore would have been obvious to one of ordinary skill in the art to use isocyanate free polyurethane and plasticizer in the ink of either Gajria or Ito in order to produce a storage stable ink with good adhesion, and thereby arrive at the claimed invention.

22. Claims 1, 3, 5-7, 9-18, 27, 2936, and 38-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nowak et al. (U.S. 6,425,948) in view of Cook (U.S. 4,146,699).

Nowak et al. disclose ink for ballpoint pen which has viscosity of less than 500,000 and comprises 0.1-60% fluorescent pigment, 5-90% solvent such as alcohol, polyol, ketone, and lactone, 0.1-30% antioxidant such as tocopherol, eugenol, hydroquinone, and butylated hydroxy toluene, 0.1-50% polyurethane, 0.1-40% plasticizer, 0.1-30% lubricant, and 0.1-5% dispersant (col.2, lines 54-65, col.3, lines 3-25 and 45, col.3, line 62-col.4, line 4, and col.4, lines 14-15 and 20-21).

The difference between Nowak et al. and the present claimed invention is the requirement in the claims isocyanate free polyurethane.

Nowak et al. discloses the use of polyurethane, however, there is no explicit disclosure that the polyurethane is isocyanate free.

Cook, which is drawn to process of making polyurethane, disclose that if free isocyanate is present, storage stability is a problem as well as less favorable processing characteristics and physical properties (col.2, lines 14-25).

In light of the motivation for using isocyanate free polyurethane disclosed by Cook as described above, it therefore would have been obvious to one of ordinary skill in the art to use isocyanate free polyurethane in the ink of Nowak et al. in order to produce a storage stable ink with good processing and physical characteristics, and thereby arrive at the claimed invention.

NOTE: As set forth in amended 35 USC 103(c), subject matter which qualifies as prior art under one or more subsections (e), (f), and (g) of section 102 cannot be applied against the claimed invention if the prior art and the claimed invention “were, at the time the invention was

made, owned by the same person or subject to an obligation of assignment to the same person.”

This rule change to 103(c) applies to any patent application filed on or after November 29, 1999. See Official Gazette, April 11, 2000. As noted in the Official Gazette, the “mere filing of a continuation application on or after November 29, 1999 will serve to exclude commonly owned 102(e) prior art that was applied, or could have been applied, in a rejection under 103 in the parent application.”

Given that the filing date of the present application is subsequent to November 29, 1999, applicant is advised that a statement indicating that Nowak et al. was commonly owned at the time the present invention was made will be required to remove the rejection under 35 USC 103. See the Official Gazette Notice of April 11, 2000, 1233 OG 54.

23. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Knable et al. (U.S. 4,532,276) disclose writing fluid comprising polyurethane and colorant.


Ida (U.S. 6,037,391) disclose ink for ballpoint pen comprising polyurethane thickener, dye, lubricant, and corrosion inhibitor.

24. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 703-305-0208. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

Art Unit: 1714

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 703-306-2777. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.


Callie E. Shosho
Examiner
Art Unit 1714

CS
August 8, 2002